DOCUMENT RESUME

ED 253 014 EC 171 347

AUTHOR Massie, Henry N.; And Others
TITLE A Report of Neuropsychological Differentation and De-Differentation in Very Young Children in Conflict with Special Reference to Autism.
PUB DATE Oct 83
NOTE 21p.; Paper presented at the Annual Meeting of the American Academy of Child Psychiatry (San Francisco, CA, October,1983).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Autism; *Behavior Patterns; *Infants; Mothers; Motor Development; Neurology; *Parent Child Relationship; Young Children

ABSTRACT

Longitudinal studies of mother-child interactions for the third trimester of pregnancy to age 4 are described. The effort is aimed at analyzing early childhood data to determine stability of mother-infant interaction, correlations among mothers' character as defined by adaptive and maladaptive defenses, major conflicts, sense of reality, and capacity for empathy with her external behavior with her baby; and correlations of the patterns of mother-infant behavior with the child's own emerging behavior. Analysis of films identified two time periods (9 months and 14 months) during which hand and finger mannerisms appeared in stress situations. Results are compared to an earlier study in which autistic Ss developed hand and finger mannerisms as a clear and persistent symptom between 9-12 months of age. A review of the major indicators of psychological differentiation suggests that the same period in which finger mannerisms reappear may mark the demarcation of autistic from normal development. Analysis of the specific context in which the stereotypies occur is further analyzed, and questions relating the mannerisms to such conditions as schizophrenic regression and Tourette Syndrome are raised. (CL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED253014

A REPORT OF NEUROPSYCHOLOGICAL DIFFERENTIATION AND DE-DIFFERENTIATION IN VERY YOUNG CHILDREN IN CONFLICT WITH SPECIAL REFERENCE TO AUTISM

Henry N. Massie, M.D., Joseph Afterman, M.D. and Abbot Bronstein, Ph.D.

McAuley Neuropsychiatric Institue of St. Mary's Hospital
and Childrens, Hospital, San Francisco, California

Presented at the Annual Meeting of the American Academy of Child Psychiatry, San Francisco, October, 1983

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Henry Massie
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

In this report we are going to focus on some events that occur around the ages of 9 months and 14 months of life. We have been especially intrigued by several other workers' findings from these ages which seem to be like pieces of a puzzle that are falling into place, which may demonstrate direct connections between data from research in infancy development and psychopathological states in later years. Findings from our own research appear to have a place in this puzzle.

Let us begin by introducing our data base. In our work we have followed 20 families from the third trimester of pregnancy with a variety of measures (although they are systematic only for the mothers and the babies, not for the fathers). The data consists of Draw-A-Parent-Child projective tests for the parents and MMPI's for the parents in the third trimester, Brazelton Neonatal Behavior Assessments for the newborn, Broussard Neonatal Perception Inventories for the parents for the first month, films of the mothers feeding their baby within the first three days, and then sequential films of mother and child during well baby pediatric visits for the first 16 months (this is a situation that assesses mother infant behavior under mild to moderate stress), then a Strange Situation Film at 18 months, and films of mother and child playing with blocks at 24 and 36 months. There have also been Rorschach and WAIS psychological tests of the mothers at 12 months, periodic assessments of the children, and periodic clinically oriented interviews with the families and children. The kids are all now four years or older with long range follow-ups planned toward the end of grammar school and high school.

We are in the process of analyzing the early childhood data with a basic goal of 1) learning what kind of stability there may be in patterns of mother-infant interaction from birth onwards 2) correlating the mother's character as it is

defined by her style of adaptive (and sometimes maladaptive) defenses, major conflicts, sense of reality, and capacity for empathy with her external behavior with her baby, and 3) correlating the patterns of mother infant behavior with the child's own emerging character.

Our clinical contacts and projective tests with the parents give us a window into their intrapsychic functioning which so powerfully drives external behavior. And the instrument we are presently using to document interactional mother-child behavior is the Massie-Campbell Scale of Mother-Infant Attachment Indicators During Stress (1983). This allows us to describe the particular ways in which parents and infants gaze, verbalize, touch, hold, and maintain proximity to each other under the impact of a mild to moderate stress. The scale is useful to approx. 18 months and thus also serves to document mother-toddler reciprocal response during the reunion episode of the Strange Situation Test. When our children reach 24 and 36 months we sought to look for the same attachment parameters as they may have become imbedded in more complex social behaviors; and to this end we are examining films of the parent and child as to "make something" with blocks with the Block Task Rating Scale devised for the project. Thus the Block Task Rating Scale measures dyadic mother-toddler affect, visual attention, praising and verbalizations, assistance and problem solving, and cognitive style. Clearly we are using largely clinically oriented instruments that do not measure the micro-kinesic elements of process. This kind of measurement of micro-process may follow in the future with our data but it is not our focus at present.

However, as so often happens in research what we were looking for was not necessarily the first thing or the most important thing we found. And this brings us back to our first comments in which we said we were going to focus on two time periods: 9 months and 14 months. As we were reviewing films case by case this past summer we noticed that many of our children demonstrated specific

hand and finger mannerisms at about 9 months, with a range of about 7 to 11 months, during the circumstances of excitement, stress, and comforting which characterizes the pediatric well-child examination. These mannerisms last about 5 seconds and consist of rhythmic beats of 1) the child's fingers as if he were playing a piano, 2) the child's fingers being brought into contact with the palm, or thumb being brought into opposition with the other fingers, as if the child were reaching and grasping, and of 3) the child's hand flapping down at the wrist as if he were waving or reaching. The variations of the mannerism may occur separately or be linked. The study of mannerisms such as these is not in itself new. Werry, Carlielle, and Fitzpatrick (1983) systematically review "Rhythmic Motor Activities (Stereotypies) in Children Under 5: Etiology and Prevalence." Likewise Thelen (1979, 1980, 1981) had similarly reported her systematic study of the prevalence of rhythmic mannerisms in normal infancy - the most complete work to date. Thelen defined, as we do, a rhythmic stereotypy (or motor mannerism) as a movement of parts of the body or the whole body that is repeated in the same form at least three times at regular short intervals of about a second or less. She found that the peak age for the presence of rhythmic mannerisms as a whole in normal children in the first year of life during the day time is between 6-8 months. And during this age it is not unusual for children to spend close to 10% of a time sample in rhythmic behavior. The peak incidence of hand and finger waving and grasping mannerisms coincided with the age at which we observed them in our own films of children under stress, that is at about 7-9 months.

However, what became especially exciting for us was the observation in our films that after 11 months the mannerisms disappeared, and then in some children reappeared in our filmed stress situations at around 14 months. They then vanished

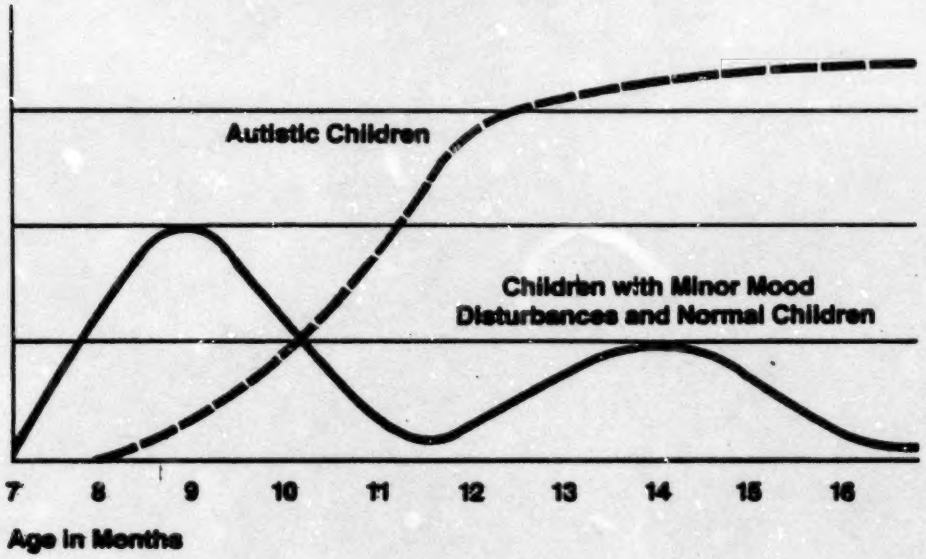
in our population of relatively normal infants and toddlers not to reappear again to the present time.

We cannot yet report precise mean ages and ranges*, but this kind of biphasic appearance of the hand based stereotypies seems to be a firm trend in our films, and raises several interesting questions: 1) What are the specific circumstances during which the stereotypies occur? 2) Why does the mannerisms vanish in some children, return in others, and then vanish again?

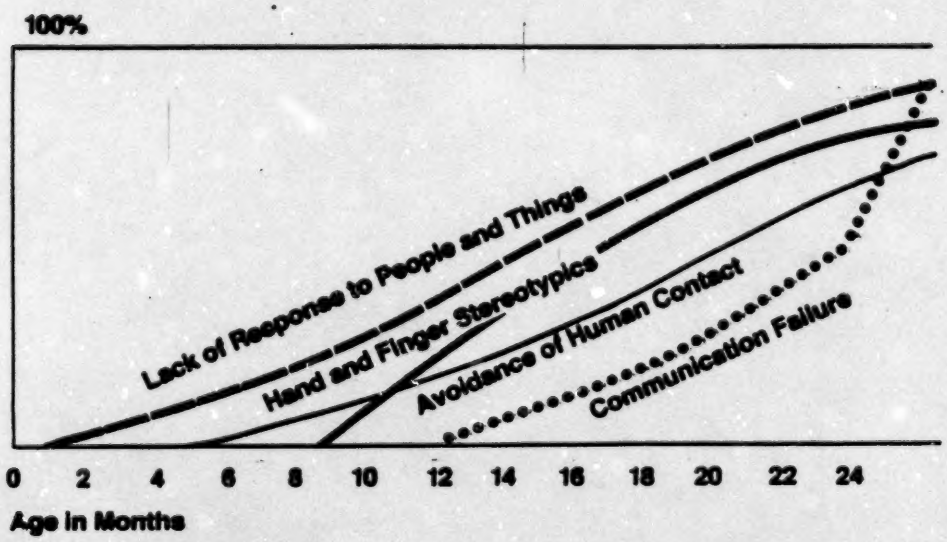
---

* Preliminary data review suggests that more than 2/3 of babies show stereotypies at about 9 months, which reappear in 1/4 to 1/3 of the children at about 14 months.

Relative Incidence of Finger and Hand Waving and Grasping Mannerisms



Relative Incidence of Early Symptoms in Autism — Percent of Children Showing Symptoms



3) What are their developmental or functional implications from the point of view of a) neurologic maturation b) cognitive maturation, and c) the psychological development of differentiated affects and defenses?

4) Is its transient return in some children under stress at about 14 months indicative of a neurologic and psychological de-differentiation which may be a temporary psychopathological formation? If so, this may assist us in explaining a child's proclivity to future choice of defense, emotional regression, and symptom choice. And if the 14 month stereotypies are transient psychopathological formations, looking back in age they may also help us understand the stereotypies in autism which seem to become fixed symptoms between 9-12 months. Once established, the autistic's rhythmic behaviors are a principal part of his illness in that they preoccupy him to the exclusion of human contact and communication.

Let us now proceed with these questions, first by looking back from 14 months to correlate with autism. In our earlier study reported as the "Early Natural History of Childhood Psychosis" (Massie, 1978), it was found that in a series of children suffering from autism the majority developed the previously described hand and finger mannerisms as a clear and persistent symptom between 9-12 months of age. The remainder developed motor disturbances somewhat later.

Insert Figure 1 at this point

In our 1978 study, stereotypies between 9-12 months were often the first clear symptom of autism, along with avoidance of eye contact whose appearance showed a greater range of age at onset varying from 4 mos. to 2 years.. The motility disturbances were followed at about 12 months with frequent findings of plastic or very labile and immature facial expressions in contrast to the rapid maturation of facial expression at this age in normal children in the service of communicating discrete emotions. Then in the second

year the failure to acquire verbal language and gross motoric avoidance of human contact became prominent symptoms.

Figure 2 Here

Now in order to try to understand why things are going wrong in autistic children in the last quarter of the first year, let's examine certain important normal developmental phenomena of this age. In particular we will look at the unfolding of the child's capacity for self and other representation, and his initial attempts at symbolic communication which is linked to representational ability. The flourishing of normal and abnormal hand and finger mannerisms during this time is likely to be linked to these maturational events. . Spitz (1946) first drew attention to this age (especially at its early boundary) in describing the appearance of stranger anxiety. There is a debate as to how ubiquitous it is, but it appears in most children at least to some extent with a peak incidence at 5-8 months. Spitz felt that the child's apprehensive look, turning its head away from the stranger, and clinging to the mother signified the child's capacity for diacritic discrimination between mother and the stranger; and this indicated the baby's nascent ability to temporarily hold a discrete image of the mother in mind. The visage of the stranger which was not congruent with mother's face threatened the child's mental representation of its caretaker.

Following stranger anxiety appears the landmark separation reaction at 8-9 months. The child's anxiety and protest when the mother leaves is thought to signify that the child has distinguished self from caregiver which implies emergence of object constancy. Shortly after this developmentally, Fraiberg (1969) recognized the baby's capacity for "evocative memory". The baby does not simply recognize the mother when she is present, but can evoke her image when mother is absent. "Retrieval memory" is the term experimental psychologist's apply to this phenomenon (Kagan,). Stern (1980) considers these phenomena in toto: separation reac-

tions contain 3 distinct processes: 1) improved retrieval memory which requires a precursor of/or a form of "language" or cognitive code to facilitate storage and retrieval operations 2) the ability to generate future representations of events, and 3) the ability to communicate or make an instrumental response to deal with uncertainty or distress caused by incongruities between present events and future representations of events.

Further along these lines, Stern (1982) discusses a phenomenon which he calls intersubjectivity. The baby typically at about 8-9 months points at an object casting his glance back and forth from mother to object. This maneuver may be understood, as Stern points out, as signifying the baby's new found appreciation that mother has a separate existence and that he can share with mother a state of mind, and that he can communicate this idea, wish, or intention to the mother to achieve a goal or consequence.

Intersubjectivity dovetails with Call's (1980) more detailed linguistic analyses of the pointing gesture. Call writes that "pointing may be seen in relation to reaching and grasping...but it does not emerge as an independent gesture until after the pincer grasp has been achieved. We have not seen infants point at objects looked at, but out of grasping reach prior to the onset of pincer grasp which usually occurs at 9-9½ months. Some infants we have observed began pointing two weeks following this landmark achievement". Along with Call, Murphy (1978) follows the thread in documenting that pointing becomes integrated with vocal activity early in the second year; that is, the child uses the noise or word along with pointing to indicate an event or thing that for the first time is not necessarily connected with the mother-infant relationship.

Finally, in focusing on the developmental landmarks of the last third of the first

year,Piaget (1952) has helped us understand how the baby is "coordinating secondary behaviors", termed sensorimotor stage 4. Thus the child has established the relationship between two objects which he can now intentionally explore and act upon. This implies that the baby can intercoordinate two or more independent acts, in which one may serve as an instrument for the other. Likewise, the baby begins to be able to find objects hidden under a series of screens indicating an elementary capacity for object permanence in mental representation. These events, of course,are functionally interconnected with the other physical and emotional organizers just reviewed - stranger anxiety, evocative memory, intersubjectivity, pincer grasp, pointing gesture, and the first non mother-infant linked verbalizations and words.

In sum, we see in all of these events major indicators of the normal phase of psychological differentiation, as Mahler (1975) has described. It is the transitional step from symbiosis to intrapsychic separation and individuation. And for the purpose of review,during this transition we see a normal occurrence of hand and finger mannerisms, then their waning incidence, and their occasional return during stress at about 14 months. Most importantly, however, we see the distinctive appearance and persistence of autistic hand and finger mannerisms in autistic children during this same latter half of the first year transitional phase. What we are suggesting is that this period may mark the explicit demarcation of autistic development from normal maturation. It is not necessarily that precursors of deviant development had not existed prior to this period in some autistic children, or that some autistic children do not pass through these months without symptomatology; but rather that core autistic symptomatology involves failures of normal events during this phase. It becomes evident in most of the ill children at this time; and in the case of other children whose illness appears in the second to third year, their regression

takes them back to this developmental period. Thus, McDevitt, referring to his work with Mahler, has spoken of this stage as a differentiation crisis because of the inherent dangers to psychological structuralization involved in its passage.

What other evidence do we have that autistic children go fundamentally awry during this passage? In our own earlier research (Rosenthal, Massie, and Wulff, 1980) the family made home movies of the infancies of autistic children demonstrated how the babies typically are arrested at sensorimotor stage four for the first two years of life. That is, they remain at the stage of coordination of secondary behaviors, which is the normal cognitive accomplishment at 10-12 months, for an inordinate time. A few may not ever reach this stage in the first two years; and some may subsequently in childhood progress into preoperational reasoning. Additionally, there is a tendency for most of the preautistic infants to be less active with objects in the earliest weeks of life. And as an aside, there was also a suggestion that some of the parents of the subsequently ill children were either more removed from their babies or more overstimulating and controlling of them in the earliest weeks of life than parents of normal infants (although whether parent or infant behavior had the more formative effect on this is not clear) (Massie, 1978).

It has also been very useful to have the supporting report from Sigman and Ungerer (1982). They reviewed contemporary comparative studies of cognitive and language skills in autistic, mentally retarded, and normal children; and reported their own study of 16 autistic children with a mean chronological age of 52 months, compared with normal 21 month old children and 51 month old retarded children, so as to match the groups for a mental age of approximately 25 months on Cattell scores. At 4 years or more, all of their autistic children had traversed sensorimotor development and achieved

object permanence, as had their two control groups. However the autistic children were deficient in the capacity to imitate gestures and vocalizations, and they showed less diverse functional play. For example, the autistic children had significantly less play of the kind in which they pretended to feed and diaper a doll; and had less symbolic play (for example, play in which one object was used to stan for another such as a hand representing a coffee cup). Thus, Sigman's and Ungerer's work indicates that later acquisition of sensorimotor knowledge beyond the normative age for it is far from sufficient to assure the acquisition of symbolic functioning and symbolic expression in language. Let me quote from them:

> "One hypothesis for the variation in deficits (between sensorimotor ability and language skills) is that representational thought may be manifested in two different systems, one more advanced than the other. One system, reflected in the development of sensorimotor skills, may involve the capacity to recall information that then is accessable for problem solving. The capacity to translate experience into language and play symbols that are manipulated independently may reflect a second system (Wolff and Gardner, 1981). For the normal and mentally retarded child, the two systems may develop together, so that progress in the sensorimotor representation of absent objects may be associated with advances in symbolic skills, although neither system may be dependent on the other. For the autistic child, these systems do not cohere. It is in the second system, the ability to form and manipulate symbols that the autistic child may have a major impairment." (p. 20)

Vividly Sigman and Ungerer write, "watching a young autistic child who skillfully manipulates a rake to obtain a hidden object, but who responds in no way to language, is convincing evidence that the development of sensorimotor and symbolic knowledge can be very divergent." On the basis of our work, we would modify the word divergent to say that sensorimotor learning may be slowed or interfered with; but if the disturbance occurs at the stage of early self and other concept formation as indexed by the events of the last third of the first year, language with all it implies for

conceptual thinking will be irrevocably damaged in development.

Let us review now the train of our reasoning and begin to draw things together. We first discussed the normally occurring phase of hand/finger motor mannerisms in the latterthird of the first year, noted their brief reappearance in the second year in some children, and questioned why they became significant symptoms of autism also in the latter part of the first year. To answer this question we reviewed what is normally occurring in human and inanimate object relations and intrapsychic structuralization at this time. In essence it seems to be the period of rapid self-object differentiation with beginning object representation and constancy which permits the child to make his first intentional non body-centered symbolic communications. These are initially in the form of gestures, and shortly later in words. It is likely that the motor mannerisms of this epoch that appear in normalcy or in pathology are connected with these developmental transitions.

A closer look at the specific context in which the hand and finger grasping and waving stereotypies occur helps pin this down. On film samples of normal children the mannerisms appear as follows: the child is in a state of arousal, that is, in a heightened state of excitement or distress. The excitement may grow out of pleasurable face-to-face reciprocal smiling, vocalizing, touching, or toy play with the mother. The distress typically follows a frightening part of the pediatric physical examination which usually separates the baby from the mother's arms. The pleasurable excitement builds to a point that demands consummation in the form of holding by the mother or grasping a toy; the distress also builds to the point of needing alleviation by the parent through soothing or close holding. When the mother cannot be grasped in the sense of close support, or the toy cannot be

grasped, the repetitive hand and finger beats occur. The rhythmic movemerts are terminated when the mother intercedes; or they terminate spontaneously as the child's behavior becomes increasingly disorganized or distressed, or alternatively as the child is distracted by an object or person. The context and sequence is the same at both the 9 month and 14 month juncture.

Thus the mannerisms appear while the child is experiencing a moment of intense conflict between the need to resolve a state of distress or excitement and the inability to do so himself or get somebody to do it. He has neither the words to request comforting contact nor the locomotor ability to make it happen or with which to flee his tormentor. In this manner, in the context of severely conflicted animate and inanimate object relations, the hand and finger waving and grasping may reflect expression of prior sensorimotor experience (a motor memory, so to speak) which involved pleasurable contact with the mother, toy, bottle, or breast; and a simultaneous shift to beginning conceptual thinking and communication which is heralded by intentional pointing. The communication in this instance would have the meaning "pick me up", "give me the toy", or "make the doctor go away."

As we study the films of the children in subsequent visits after the appearance of the stereotypy, we observe them quickly achieving a variety of capacities over which they now have intentional control. They gain words for objects, and they can point clearly and call to mother; they rapidly become able to express their moods with increasingly clear facial expressions, they can push noxious objects or people away with well controlled forceful hand action and head negation, they can toddle away from the doctor, and between 13 to 15 months they start saying "no". All of these symbolic and more specific physical expressions give the baby an armamentarium

for use in a state of conflict which supercedes the earlier transitional grasping and waving rhythmic gesture. We are left, however, with the tantalizing question of why do some fundamentally intact children at about 14 months show a brief resumption of the stereotypy under the same conditions of intense conflict. Further analyses of the longitudinal data on these children may show some ways in which they are different than the other children, or ways in which they have been responded to differently by their parents. But we can presently hypothesize that these 14 month toddlers under intense conflict between a wish (to consummate a desire and thus reduce their arousal) and their inability to do something about it, feel helpless even with their relatively more advanced conceptual, communicative, and locomotor skills; and they transiently regress to the more primitive motoric expressions of the transitional period of the first year.

From the point of view of neurologic function, it is possible that under strong pressure without the possibility of a voluntarily controlled way to resolve his conflict, the toddler experiences a temporary regression in the form of a loss of differentiation of central nervous system function. There is a release from cortical control which allows for the temporary regression to the more primitive motoric expressions mediated by the centrencephalon and midbrain. This is akin to the automatic responses of the terrified older child or adult -- which are mediated by the hormone triggered autonomic nervous system and reflex midbrain and brainstem connections--who responds with rage or paralysis in a life threatening situation.

This theory contains elements from other recent workers such as Thelen's explanation for rhythmic stereotypies (op. cit.); Brackbill's (1971) and Korner's (1972) descriptions of the effect of external stimulation (especially vestibular stimulation) in reducing the arousal level of newborns, and Fraiberg's(1977) recognition that motor stereotypies in blind infants (blindisms) provide a degree of self-regulated

stimulation in blind children cut off from external stimulation by dint of deprivation of visual and parental contact. In sum ,they theorize that there is an optimum level of organismic tension for the infant. In states of high arousal, rhythmic behavior may reduce excitement; under circumstances of deprivation of human contact or low arousal, self-generated stereotypies may build tension. Thelen observed in infants that non-alert states, interactions with the mother such as feeding, interest in objects, and changes of position were all likely to trigger bouts of rhythmic behavior. Thus she stated, "...it appears that the simple motor patterning reflects some degree of functional maturity of a particular neuromuscular pathway, but as-yet imperfect voluntary control and goal correction...like animals who act as though they should 'do something,' these infants act as if a stimulus signals 'behave,' but in the absence of appropriate goal correction, the behaviors that appear are these sub-cortical motor patterns (stereotypies) that are the most simple, yet organized, behavior that can be produced." (1979, page 713).

Our report is a refinement of these ideas in two ways. 1) It describes how object related intrapsychic conflict can lead to the emergence of stereotypies at 9 months; and 2) it describes their transient re-emergence in some normal children at about 14 months which demonstrates that a de-differentiation of neuropsychologic function can occur. In these latter children some weeks later, their physical, conceptual and verbal abilities are more robust and they no longer seem to experience the transient release from cortical control which took them back to the differentiation period of the first year when intentional communication and concept formation was first taking shape.

As we have pointed out, it was at this earlier juncture of about 9 months that the motor mannerisms we are describing in normal children became clear symptoms in autistic children. This suggests that the autistic child at this point is not

progressively subordinating subcortical functioning to voluntary control which allows for increasingly discrete and purposeful response and expressiveness. There is an arrest in his progression toward representational thinking and selective representational memory, which aids the subordination of subcortical functioning. Representational thinking and memory builds to language; and consistent with arrest in this area is the pervasive finding of communication difficulty in sufferers of autism. The older autistic child's disability with receptive and expressive language seems especially to be an underlying impairment of conceptual thinking which, further, is typically characterized by an under-generalization and over-generalization of ideas. As a brief example, we recently asked an autistic teenager, "What place are the San Francisco Forty-Niners in?" He responded, "Candlestick Park." This is an illustration of a concrete failure on the teenager's part to generalize "place" to its more metaphorical meaning. Thus, although progress toward cortical dominance may resume in the young ill child with successful passage to stage 6 object permanence, the ability to think conceptually seems to have derailed at the earlier juncture.

To conclude, the finding of atavistic motor mannerisms in some of our normal children in states of conflict at about 14 months raises additional questions. In brief, 1) Is a similar mechanism involved in the temporary neurotic tics of older children? Here Mahler's (1949) earlier study of tics is especially helpful in discussing their manifestation and role in conditions of intrapsychic conflict. 2) Do sufferers of Tourette Syndrome experience a permanent regression to mid-brain control of their particular motor and verbal expressions of distress? Their overall ability to communicate is preserved since it has already securely developed from what may be called the protosymbolic matrix of the first year of life, which is not the case with autistic children. 3) Is the tendency of some toddlers when in distress to show rhythmic mannerisms

early in the second year a harbinger of their future choice of defense mechanisms to manage intrapsychic conflicts? For example, we wonder if these children will opt for a defensive style that emphasizes elements of repetitiveness or rhythmicity. This is inherent in obsessional functioning where repetitive thinking isolates one from disturbing affect. Or will the children be likely to emphasize the somatic expression of anxiety as hysterics are prone to do? 4) Finally there is a possibility of a relationship of some of the mechanisms we have been discussing to schizophrenic regressions. In acute schizophrenia conceptual ability fails as does reality testing under circumstance of overwhelming intrapsychic conflict. And the failures of thought and expression are frequently accompanied by abnormal motor mannerisms such as tremors, catatonic posturing, and choreoathetonic movements remindful of the behaviors we have been describing.

We anticipate that our own research strategy with respect to these questions will be to follow-up our cases with these ideas in mind. We would also like to do detailed cross-sectional analyses of the mother-infant relationship, object permanence, early language, stereotypies and defense behaviors, and neurologic maturation in children under a mild standard stress at 14 months. Understanding these inter-related phenomena at this age when development is accessible to neuropsychological examination but also still very plastic in terms of forward and backward movement may clarify what mechanisms may go wrong in the diverse conditions just mentioned.

With these final questions we have been casting ideas rather broadly. We hope that one or two may find fertile ground for further explication by other clinicians and researchers in the field.

References

Brackbill, Y. (1971), Cumulative effects of continuous stimulation on arousal level in infants. Child Devel., 42: 17-26.

Call, J. (1980), Some prelinguistic aspects of language development. J. Am. Psychoanalytic Assoc., 28:259-289.

Fraiberg, S. (1969), Libidinal constancy and mental representation. Psychoanalytic Study Child, 24: 9-47.

Fraiberg, S. (1977), Insights From the Blind. New York: Basic Books.

Kagan, J. ( )

Korner, (1972), The relative efficacy of contact and vestibular-proprioceptive stimulation in soothing neonates. Child Devel., 43:443-453.

Mahler, M. (1949), A psychoanalytic evaluation of tic in psychopathology of children; symptomatic and tic syndrome. Psychoanalytic Study Child, 3/4:285-310.

Mahler, M., Pine, F., and Bergmann, A. (1975), The Psychological Birth of the Human Infant. New York: Basic Books.

Massie, H. (1978), The early natural history of childhood psychosis. J. Am. Acad. Child Psychiatry, 17:29-45.

Massie, H. (1978), The early natural history of childhood psychosis: blind ratings of mother-infant interaction in the first 6 months of life in subsequently psychotic children and controls. Am. J. Psychiatry, 135:1371-1374.

Massie, H., and Campbell, B.K. (1983), The Massie-Campbell scale of mother-infant attachment indicators during stress. In: Frontiers of Infant Psychiatry, eds. J. Call, E. Galenson, R. Tyson. New York: Basic Books, pp. 395-412.

McDevitt, J. ( ),

Murphy, C. (1978), Pointing in the context of a shared activity. Child Devel., 49:371-380.

Piaget, J. (1952), The Origins of Intelligence in Children. New York: Int. Univ. Press.

Rosenthal, J., Massie, H., and Wulff, K. (1980), A Piagetian based analysis of intellectual development from birth to 2 years in subsequently psychotic children. J. Autism and Devel. Disorders, 10:433-444.

Sigman, M. and Ungerer, J. (1982). Cognitive and language skills in autistic, mentally retarded, and normal children. Presented at the Annual Meeting of the American Academy of Child Psychiatry, Washington, D.C., Oct.

Spitz, R. and Wolf, K. (1946), Anaclitic depression: an inquiry into the genesis of psychiatric conditions in early childhood. Psychoanalytic Study Child, 2:313-339.

Stern, D. (1980), The early development of schemas of self, of other, and of experiences of "self with other". Presented at the Symposium on Reflections on Self Psychology, Boston Psychoanalytic Institute, Oct. To appear in Reflections in Self Psychology, ed. D. Berkowitz.

Stern, D. (1982), Implications of infancy research for clinical theory and practice. Presented at the Second Interdisciplinary Symposium on Development, San Francisco Psychoanalytic Institute and Stanford Univ., Nov.

Thelen, E. (1979), Rhythmic stereotypies in normal human infants. Anim Behav., 27: 699-715.

Thelen, E. (1980), Determinants of amounts of stereotyped behavior in normal human infants. Ethol. Sociobiol., 1:141-150.

Thelen, E. (1981), Kicking, rocking, and waving: contextual analysis of rhythmic stereotypies in normal human infants. Anim. Behav., 29:3-11.

Werry, J., Carlielle, J., and Fitzpatrick, J. (1983), Rhythmic motor activities (stereotypies) in children under 5: etiology and prevalence. J. Am. Acad. Child Psychiatry, 22:329-336.